

CLAIMS:

1. A method of detecting a focal length which calls for:
setting a plurality of image detecting areas adjacent
to one another;

obtaining multiple image data while changing the focal
length of an optical system;

calculating from said multiple image data:

a partial focal length for each image detecting
area based on which image data the peak value of
contrast evaluated values has been recorded in, and

the reliability of each image detecting area
based on the position at which said peak value has been
recorded moving across the multiple image data; and

selecting a focal length from a group consisting of said
partial focal lengths and at least one given focal length, said
focal length selected based on the reliability and the evaluated
values of each respective image detecting area.

2. A method of detecting a focal length as claimed in claim
1, wherein:

weighting of evaluated values performed based on the
calculated reliability, and

a focal length is selected from among the partial focal
lengths of the image detecting areas based on the evaluated
values thereof to which weighting has been applied.

3. A method of detecting a focal length as claimed in claim 1 or claim 2, wherein:

should a position at which a peak value has been recorded move from at least one image detecting area that contains said position into at least one other image detecting area, the reliability of the first-mentioned image detecting area is reduced.

4. A method of detecting a focal length as claimed in claim 1 or claim 2, wherein:

should a position at which a peak value has been recorded move more than a given distance across plural image detecting areas that contain said positions at which peak values have been recorded, the reliability is reduced.

5. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 4, wherein:

in cases where image data containing a great peak value has been obtained, the number of images to be subsequently obtained in the form of data is reduced.

6. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 5, wherein:

a peak point movement determining value, which is used at the time of calculation of a reliability for determining whether a position at which a peak value has been recorded has moved is a variable calculated based on photographing

conditions.

7. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 6, wherein:

a plurality of peak point movement determining values are set for determining at the time of calculation of a reliability whether a position at which a peak value has been recorded has moved, and the peak point movement determining values are sequentially compared with the multiple image data.

8. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 7, wherein:

the focal length is selected from among the partial focal lengths in the image detecting areas, either the partial focal length at the shortest distance or the partial focal length at the longest distance, in accordance with the operator's choice.

9. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 7, wherein:

a control means selects as the focal length either the partial focal length at the shortest distance or the partial focal length at the longest distance from among the partial focal lengths in the image detecting areas in accordance with the operator's selection of the range of photographing distance.

10. A method of detecting a focal length as claimed in any one of the claims from claim 1 to claim 9, wherein:

the focal length is selected based on the reliability between a partial focal length selected from among the partial focal lengths in the image detecting areas and a given focal length.

11. A method of detecting a focal length as claimed in claim 9, wherein:

the focal length is selected, based on the reliability, between a partial focal length selected from among the partial focal lengths in the image detecting areas and a given focal length that has been set as a result of the operator's choice.

12. A focusing device including:

an image pickup device,

an optical system for forming an image on the image pickup device,

an optical system driving means for changing the focal length of the optical system, and

an image processing means for processing image data output from the image pickup device and controlling the optical system driving means, wherein:

the image processing means is adapted to:

obtain multiple image data while changing the focal length of the optical system by controlling the optical system driving means,

define a plurality of image detecting areas

adjacent to one another in each one of the multiple image data obtained as above,

calculate a partial focal length for each image detecting area based on which image data the peak value of contrast evaluated values has been recorded in,

calculate the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data, and

select a focal length from a group consisting of said partial focal lengths and at least one given focal length, said focal length selected based on the reliability and the evaluated values of each respective image detecting area.

13. A focusing device as claimed in claim 12 wherein:

the focusing device is provided with a photographing mode selecting means adapted to make selection between a short-distance priority mode and a long-distance priority mode, and

the image processing means is adapted to select the focal length with priority given to either the partial focal length at the shortest distance or the partial focal length at the longest distance in accordance with the result of operation of the photographing mode selecting means.

14. A focusing device as claimed in claim 13 wherein:

the optical system driving means is capable of driving the optical system into an overstroke range, which is a range beyond the range of focal length for which the optical system is designed.